

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

SOLID WASTE MANAGEMENT PROGRAM

SOLID WASTE GUIDELINE #9

A GUIDE TO WYOMING COMMUNITIES FOR STARTING A PROGRAM TO COLLECT AND MARKET RECYCLABLE MATERIALS

Written in cooperation with the Wyoming Outdoor Council

Note: Terms used in this document may have varying meaning(s) when used elsewhere. Most terms, for the purpose of this guideline, are defined within the document.

Introduction

Why recycle?

- By using recyclable* materials in the manufacturing process instead of virgin materials, natural resources are saved, for example, bauxite used in the manufacture of aluminum and trees for the production of paper. Re-refining of used motor oil decreases consumption of virgin oil reserves.
- A direct benefit of recycling is energy conservation. For example, manufacturing one ton of recycled paper uses only about 60% of the energy needed to make a ton of paper from virgin materials. Using recyclable glass lowers the melting temperature for new glass, saving up to 32% of the energy needed for production.¹ The fact is, products made from secondary materials such as recycled paper, glass or metals consume LESS ENERGY during the manufacturing process than when virgin resources are used.
- In Wyoming, solid waste is typically disposed of by burying in a landfill. Recycling diverts materials out of the waste stream and therefore reduces the amount of waste that needs to be buried, thus extending the "life of the landfill". Bottom line - landfill space costs money and the price tag is going up every year.

** **Recyclable** - any material that can be collected, processed and re-manufactured into a new marketable item.*

Surveys conducted nationwide, including Wyoming², show that the majority of citizens want recycling programs in their communities.

¹The Recyclers Handbook, 1990, Earth Works Press, Berkeley, CA., 132 p.

²Laramie Recycling Survey, August 1990; Cheyenne Forum 1999 project, 1990.

There is a growing concern among citizens regarding disposal of solid waste. A 1988 survey by the National Solid Waste Management Association found that Americans ranked garbage disposal as the most serious problem facing local communities, second only to improving education.

To best manage our solid wastes, planning is required. Planning addresses how to dispose of solid waste and looks at all the options. Such options include landfilling, recycling, composting, incineration and source reduction. This guideline is not intended for overall solid waste planning also referred to as integrated solid waste management. The State of Wyoming in cooperation with the Wyoming Recycling Association is in the process of developing an Integrated Solid Waste Management Plan for Wyoming. It should be available in its final form in July/August 1996. The purpose of this guideline is to address the recycling component of solid waste planning and provide an interim guide, or a starting point for communities in Wyoming trying or wanting to establish community recycling programs.

Each community has its own unique waste problems that call for individual solutions; therefore, this guideline does not provide a model for the perfect recycling program. There is no such model. However, there are some general practices which hold true for a majority of successful recycling programs. This document addresses those practices and, whenever possible, uses examples from Wyoming communities.

Steps to take

1) Planning and research - The first step is to form a committee or **task force** of interested individuals. This committee could be initiated by one or more community leaders. This individual(s) could be in local government, a non-profit organization, business or a concerned citizen. Members of the task force can be solicited by contacting specific individuals by phone or by recruiting the general public via an open letter to the editor in a local paper or on the radio. However it's arranged, this group should include interested local citizens, trash collectors, city and county officials, landfill administrators and community members (business or non-profit) who may already be participating in some type of recycling activity.

The volunteer run recycling center in Lander has advice to offer for those communities starting a task force. "The sooner you can get a task force associated with, or endorsed by local government...the better". Local government does not have to take over or wholly operate the program, but they need to be involved from the beginning. Early involvement leads to "ownership" for any group and in both the short and long term they will be more likely to support the program.

Beginning planning should address the following:

- What types of materials do the people of the community want to recycle?
- Where will the materials be sold or to whom will they be given away? Don't be afraid to 'shop around' and use more than one marketing outlet or broker.
- In what form (baled, crushed, separated, loose, etc.) and quality does the buyer handle materials?
- What will it take (i.e., equipment, labor, facility, etc.) to process the materials into this form and quality?
- By what means will the materials be transported/delivered to the buyer?
- How must the materials be sorted?
- What group(s) or organization(s) will be responsible for the collection, marketing and transportation of the recyclables?
- Don't overlook groups in the community which could serve as a valuable resource to the program, e.g.- civic groups, churches, schools, community clubs, etc.

It is essential to know what materials are going to be collected and, once collected, where they are going to be marketed (sold). A **market** is defined as any source of demand for recyclable or reusable materials. It is not necessary to collect all types of recyclables at the onset of your program. Taking incremental steps is important. Start small with a few materials especially those that are more easily prepared and marketed. Expand the program over time, as you gain experience. Research all the possibilities for your area. Information regarding market availability can be obtained from resources listed in Appendix A.

Local market development is also an important consideration. Examples are glass in glassphalt or roadbase projects, newspaper as insulation or animal bedding, rubber in rubberized asphalt or road stabilization, wood waste for animal bedding, composting or energy recovery. Local governments should be encouraged to participate in local uses for recyclable materials whenever feasible. An example of this would be a community composting project at the landfill or some other convenient location. Recycling is not just collection.

Is it possible to start a business in your community for manufacturing plastic lumber or drain pipe from recycled plastics? What about the use of glass in a stained art glass manufacturing business?

2) Identifying the right program for your community - There are many types of programs throughout the country. A community must develop a program that will work best for that particular geographic and demographic area. The best program is one which considers local factors such as population and distance to markets and uses careful planning to attain the highest public participation and education. Consider which type of program will best suit the community's needs, interests, size and economic situation.

Drop-off Centers: There are generally two types of drop-off centers, and one or both can be used in your community recycling program. The first type has **multiple bins or containers** located in one or more places throughout the community. Cheyenne, for example, has several drop-off bins located around town at schools and shopping areas. Residents can deliver separated materials (separated glass, aluminum, paper, steel, plastic, etc.) or commingled recyclables (mixed glass, paper, steel, etc.) to these bins. Separation of recyclables (vs. commingling) is recommended for two reasons: first, it requires individuals to separate the materials and thus has a higher educational factor and second, it reduces contamination of recyclables. [**Contamination** is the unwanted material contained in recyclables, such as food items or metals accidentally included with glass.] A group or organization is then responsible for maintenance of these bins (in Cheyenne, the City maintains the bins).

The second type of drop-off center can be found in Rawlins, Dubois, Pinedale and Jackson. These communities use a central **drop-off building** with specified hours of operation. In these communities a local non-profit group, the municipality or volunteers operate the building (which houses the collection bins) and are responsible for processing the recyclables and arranging transportation for shipment to market(s). The Towns of Douglas and Buffalo have drop-off collection **trailers**. Laramie and Green River have a building drop-off center in addition to the multiple collection bins. Funding mechanisms for these different programs vary. Some are funded by city and/or county governments, others by private enterprises, and some are volunteer-run, primarily dependent on donations and grants. Many communities fund their recycling programs through a combination of these different funding sources.

Factors to consider:

- Location must be convenient to people.
- Hours may be limited in a central building, but quality control of the recyclable materials may be better.
- Containers set outside must be designed and labeled in such a way that contamination of the recyclables is minimized and the recyclables are protected from the weather. The University of Wyoming recycling program designed and built bins which prevent both wind and rain from getting into the recyclables and maintain confidentiality of paper materials.

Curbside Collection: Recyclables are placed outside the home, usually near the area where the trash is collected, and are picked up on a routine basis by private or municipal haulers on a specified schedule.

Factors to consider:

- Recyclable materials may be source separated or commingled, depending on how the program is set up and what the buyer requires.
- Curbside programs are generally more costly to implement and maintain, but they generally provide greater convenience and may therefore achieve higher participation rates and recovery of larger volumes of better quality materials.
- Special bins for each household may need to be purchased by the residents or may be provided by the hauler.

Special equipment for collection may also be necessary.

- Consider starting this type of program with a pilot section of the community.
- Curbside collection may take special systems for multi-family dwellings.

Currently, Wyoming has three communities with curbside collection programs. Gillette has a 'blue bag' curbside collection program. Co-mingled recyclables are placed in a blue bag at the curb and are picked up and taken to a county owned facility where they are processed for marketing. Cheyenne and Jackson both have a private business which collects commingled recyclables at the curb.

Redemption/Buy-Back Centers: Centers of this nature pay cash for one or more types of recyclables received. These centers can be fully automated machines, such as "Golden Goat" aluminum recycling machines, or they can be located at drop-off building locations where materials are weighed and the customer is paid for one or more of the recyclables. Currently, cash is paid in most communities for aluminum and some other types of metals. In order to give cash back, centers may set up an agreement with a beverage distributor or locate at a "point of sale" company (where the item is originally sold). For example, K-Mart, Walmart and other businesses give cash back for used car batteries. Organizations which pay for aluminum can be found in a majority of Wyoming communities. Money earned from the collection of aluminum can help fund the collection of other recyclables with weaker markets. For example, ARK Recycling in Laramie will pay for aluminum, but also accepts glass and plastic, two historically low paying commodities.

Materials Recovery Facility (MRFs) - A MRF processes recyclables from municipal solid waste (MSW) or from mixed recyclables. In the simplest terms a MRF is a manufacturing plant with four walls, a roof, requires manual labor and various conveyors and handling equipment for moving materials.³ According to Pete Grogan, former president of the National Recycling Coalition, the MRF of the future will contain two components, "wet sort" and "dry sort". Community residents will sort their "wastes" into two containers, the wet being food and yard wastes and the dry materials: cans, glass, paper, etc. Processing at the MRF will then require making compost from the wet sort and recycling the dry sort.

MRFs are found throughout the United States and are successfully operated in rural areas of some states; Iowa has several examples of MRFs which service a multi-county area.

Factors to consider:

- A common problem of MRFs is that removing recyclables from a mixed municipal solid waste stream (a dirty MRF) results in contaminated materials, Making markets difficult to find.
- This system has the potential for the highest recyclable recovery rate, but also has the lowest educational value for the public.

3) Finding your market(s)- Remember, recycling is not just collection! Before a single recyclable is collected within a community, a market must be identified for materials. Because of Wyoming's geographic location and population density, markets are typically long distances from the Cowboy State. It is possible to identify markets by:

- Contacting local government officials in your community and other communities in your county or regional area.
- Word of mouth from people in the community interested in recycling.
- Contacting individuals or groups listed in Appendix A of the guideline for information.
- Looking in the phone book (should check locally and nearest metropolitan areas).
- Attending trade shows, seminars, conferences and workshops on recycling.
- Joining a recycling association that practices **cooperative marketing**. Cooperative marketing occurs when two or more towns, counties or states join together to increase the **quantity** of recyclables collected and transported to

³Bishop, R.S., 1991, Defining the MRF, *Resource Recycling*, October 1991, pp. 36-41.

market. The Wyoming Recycling Association, a non-profit corporation was established in 1992 to assist Wyoming communities with cooperative marketing. (See Appendix A).

A market may be a **processor** or an **end-user**. A processor is defined as a dealer, broker, scrap yard, municipal center, etc. An end-user is a mill, foundry, factory, refiner, plant, etc. Questions you will want to have answered by your processor or end-user before you sign any contract or enter into any agreement include the following:

- **What types of materials are accepted?** Make sure you are talking about the same thing. For example, not all plastics are the same. There is an SPI coding system for plastic; plastics are numbered 1-7. Find out what the different types are and which ones your market will accept. Another example is magazines. Some markets will accept magazines and catalogs together while others will accept magazines only.
- **What are the processing requirements?** For example: does the material need to be separated, shredded, baled, loose, etc.? Most glass recyclers accept only color-separated glass. Be sure to find out what the current status is for processing. Also, if applicable, find out how long your processor/end-user will allow you to store materials outdoors before he/she will no longer be able to accept it. For example, plastic degrades in sunlight and left outdoors may increasingly lose its worth.
- **What, if any, contaminants are acceptable?** Contaminants may include dirt, food residue, metal caps and rings, labels, plastic or any item which lessens the *quality* of the shipment. Rebecca Secrest of Recycling Associates Inc. best sums up the situation in her statement, “*Quality* material can always find a market.” Materials that contain unacceptable quantities or types of contaminants will be rejected by the processor or end-user. If this occurs the price of transporting and disposing of the materials will be the responsibility of the generator (i.e., the community recycling program will have pay to bury the waste).
- **What type of transportation is required?** Find out if the materials will be picked-up by the processor/end-user or if you will have to deliver the materials. What is the minimum quantity you will need to collect before you can ship? Is it possible to ship by truck, rail or bi-modally (truck and rail)? How will materials be packaged for shipment: loose, bundled, in bags, gaylord boxes?
- **What other services are provided by the industry?** Does your processor/end-user provide any type of technical assistance? Does she provide educational materials such as brochures, videos, etc. Are there equipment loans or leases available from the processor? ARK Recycling in Laramie, for example, provides trailers to many communities in Wyoming where it collects materials. A processor may provide gaylords (cardboard containers), glass crushers, pallet jacks or a number of other types of required equipment.
- **Does the processor/end-user offer any type of delivery bonus?** Some processors/end-users may provide a bonus based on time of shipment, quality and/or quantity of materials, etc.

4) Transportation options - Transportation is the biggest hurdle for Wyoming recyclers to overcome. Identifying a transporter, scheduling pick-up and delivery times with that individual or company and being able to afford the shipping rates to markets hundreds, sometimes thousands, of miles away may be difficult, but not impossible. Will the end-market or broker arrange for transportation?

An option referred to as **back-hauling** is working very well for several Wyoming communities. Back-hauling is when a transportation network (typically truck or rail) delivers goods to a community and then recyclables are picked up and transported in a truck or railcar that would otherwise be returning empty to its point of origin. The Wyoming Trucking Association may be able to assist in identifying trucks available for back-haul in your area (see appendix A). Try to contact truckers by posting a notice at truck stops, chambers of commerce and other visible areas. Determine what is shipped by truck or rail in your area and with what frequency. Does the transporter leave empty? To where? Can they offer you a discount because they're backhauling? Try to set up a contract to ship recyclable materials out by such means. Lander recyclers identified a truck that delivers a product from Salt Lake City to Lander twice a week. When enough recyclable materials are collected, they are loaded onto a pup trailer at the back of the

truck and hauled to market in Salt Lake City. This was arranged for a flat fee each time the pup trailer is taken.

It may also be possible to combine the transportation of your recyclables with another community which is on the transportation route of your back-hauler or standard trucker and cooperatively market your materials. This is particularly effective in rural areas where one small community may not generate enough recyclables to ship to market on a regular basis.

5) *Funding options* - Every recycling program, no matter how big or small, requires financial support. Check with local, state and federal solid waste/recycling programs (maybe office of Economic Development or Small Business Development Centers) to determine if there is funding (grant or loan programs) available to initiate and/or operate a recycling program. The State of Wyoming and the Environmental Protection Agency both have recycling grant programs. Businesses may want to contribute to a recycling program through donations of money, equipment or services. Every public and private sector individual or group should be acknowledged for their participation.

In some areas of the country, residents choose to pay an additional charge per month to participate in a local recycling program. Surveys conducted in Wyoming show that citizens in some Wyoming communities would be willing to pay in order to have recycling available in their community. A municipal, county or private trash hauler may want to investigate ways to integrate a recycling fee with current disposal fees or develop an independent fee.

6) *Public education and promotion* - Not everyone may understand and/or support participation in a recycling program. Recycling is a learning process. Education on the proper separation and preparation of materials is an on-going process. Public education can be done through any or all of the following channels:

- Word of mouth (either to individuals or civic groups, churches and school organizations):
 - from local task force members;
 - from friends;
 - from local recycling coordinator;
 - through a "block leader" program. Block leaders are volunteers who inform residents in their neighborhood about recycling in the community. This information may include drop-off locations, what is accepted for recycling, how the materials must be prepared, etc. Jackson has implemented a block leader program which has been very successful at increasing the participation rate and the quality of material received at its recycling center;
- Press releases in local newspaper(s);
- Public service announcements on local radio or television;
- Printed materials such as posters, fliers, pamphlets;
- Encourage recycling curricula to be included in local schools. The Wyoming Institute for the Development of Teaching at the University of Wyoming is developing a Wyoming Energy and Recycling Curriculum for grades K-12. (see Appendix A for contact).

7) *Implementing your program* - After determining where to market collected materials, what type of recycling program is best suited for your community, funding has been found, community education has begun, you are ready to implement your program. Keep in mind:

- Consider pilot-testing the program before going full-scale.
- Start with the easiest changes first to help build momentum for the program.
- Expand the program step by step (incremental change is very important).
- Publicize the program.
- Create a brochure that clearly explains all necessary information for your program such as hours of operation, types of materials collected, guidelines for proper separation, etc.
- Be professional. If your educational materials, signs, PSA's, etc. look neat, clean and professional the public is more likely to take your program seriously.
- Adjust the program as needed.

Additional ideas and suggestions - There are thousands of innovative ideas for recycling programs-- below are a few

which have been successfully implemented in Wyoming:

- Identify a community close to yours, either in physical distance or in population and find out what it has done. Don't just learn about what has been successful but also what struggles or problems have had to be overcome. This will help save a lot of valuable time by not re-inventing the wheel!
- Check into the possibility of cooperative marketing. This may be done with two or more communities. These communities do not have to be limited to your county or state. For more information about cooperative marketing, contact one or more of the organizations given in Appendix A.
- Ask municipal and/or county officials to donate land, building(s), equipment, labor, or whatever they can to support and assist the program. Some towns/cities in Wyoming will be able to do more than others, but a show of support from local government officials can be extremely beneficial and in most cases, is essential to a program's survival.
- Build recycling bins instead of purchasing them. Municipalities, civic organizations and schools are often receptive to building bins as a community service project. Local businesses are often willing to donate the necessary materials.
- Find local uses for recyclables. If materials can be used locally the cost of transportation is virtually eliminated. Glass can be used in glassphalt or road building. Paper can be used for insulation or animal bedding. Wood can be used for energy recovery. Food and yard wastes can be composted by individuals or at landfills; the compost may then be applied to local parks, green areas and gardens.
- Find out about recycling 'office pack'. Office pack includes a mixture of computer paper, white office paper, junk mail, faxes, file folders and more. It is convenient for individuals in government offices, schools and businesses to recycle and recovers a greater portion of the waste stream.
- Keep an open mind to new ideas and suggestions. Your community may be the one to provide new and innovative ideas for recycling in Wyoming and the entire western region!

Further information can be obtained from the following DEQ Offices.

Solid and Hazardous Waste Division

Casper	(307) 473-3450
Cheyenne	(307) 777-7752
Lander	(307) 332-6924

Signed,

David A. Finley
Administrator
Solid and Hazardous Waste Division

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Date